

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph from page 3, line 20 to page 4, line 2, as follows:

Ozone is also used as a means for reducing the volume of excess activated sludge in waste water treatment systems employing the activated sludge method (see Japanese Examined Patent Application Publication No. H05-85236 Patent Document 1, Japanese Patent Application Laid-open No. H06-206088 Patent Document 2, Japanese Examined Patent Application Publication No. S57-19719 Patent Document 3).

Please amend the paragraph on page 4, lines 5 to 8, as follows:

The present inventor previously invented a waste water purification process by the activated sludge method, in which a gas is dispersed and held in a liquid in the form of (ultra)fine bubbles (see Japanese Patent Application No. 2002-212598 Patent Document 4).

Please amend the paragraph on page 4, lines 9 to 17, as follows:

Herein, dispersing and holding of a gas in a liquid in the form of (ultra)fine bubbles using a stirring device (see Japanese Patent Application Laid-open No. H07-124577 Patent Document 5) or the like can improve dramatically gas solubility and dispersibility in a liquid, and enables to accomplish a gas-phase utilization of nearly 100%. However, activated sludge reaction systems are operated, as a rule, as a open system under the atmospheric pressure, and ~~necessitate~~ therefore further improvement as regards reducing the amount of excess sludge produced as a result of the waste water cleaning action.

Please amend the paragraph on page 7, lines 4 to 13, as follows:

The present invention involves basically using the line atomizer disclosed in detail in Japanese Patent Application No. 2002-212598 (US 7,105,092 is the English language equivalent) Patent Document 4 to dissolve in a liquid, in a high concentration, an oxygen-containing gas and/or an ozone-containing gas, and using gas-storage gasified solution technology for direct gasification of a solution of treatment waste water in a high-pressure reaction vessel, or for

supplying a high-pressure gasified solution to the waste water under treatment, promoting thereby the biological reactions and/or chemical reactions so as to decompose organic substances in the waste water into gases and water to the highest extent possible.

Please amend the paragraph on page 9, lines 14 to 17, as follows:

As the atomizer may be used, for instance, a static-type mixer in a multistage arrangement or in a parallel arrangement for the respective functions. A preferred example of the atomizer is the "stirrer apparatus" used in an "ozone reactor" (Japanese Patent Application Laid-open No. H07-124577 Patent Document 5).

Please amend the paragraph on page 10, lines 15 to 20, as follows:

If a gas and a liquid can be introduced into a gas-liquid mixer using a single machine, this stirrer device (also called an OHR line mixer) enables ultrafine bubbles having a bubble size of about 0.5 to 3.0 μm or even finer, from 1 nm to 1,000 nm, to become uniformly dispersed and mixed in a liquid in the short time that it takes to pass through the gas-liquid mixer.

Please amend the paragraph on page 14, lines 1 to 8, as follows:

The gas-liquid mixture fluid resulting from mixing of a gas and a liquid in the line atomizer is introduced in the waste water for treatment. ~~As At~~ the spot at which the gas-liquid mixture fluid is introduced, the mixture is introduced directly into the pressurized reaction vessel. When the gas supplied via the line atomizer is differentiated into gas containing mainly oxygen and gas containing mainly ozone, there may be provided plural pipes for introducing the respective gases into the pressurized reaction vessel.

Please amend the paragraph on page 14, lines 9 to 14, as follows:

In the atomizer, the desired gas is mixed under pressure with a solution to form ultrafine bubbles having a bubble size of 300 μm or smaller which increases the dissolving speed of the gas into the liquid to yield a dissolved gas, with the remaining gas in the form of ultrafine

bubbles that can be dispersed/accumulated/stored to be fed, without further changes and under a high pressure, into the reaction vessel.

Please amend the paragraph from page 15, line 17 to page 16, line 4, as follows:

The present invention enables increase of the dissolved amount of poorly soluble reactive gases such as oxygen, air or the like, to greatly promote the activity/multiplication of the microorganisms affording thereby digestion/breakdown of soluble organic substances in the waste water within a shorter time. Using a pressurized reaction vessel, moreover affords a substantially compacted size of the waste water treatment facilities, thanks to a reaction vessel having about 1/10 to 1/100 ~~time-times~~ the volume of conventional reaction vessels that employs only water depth pressure (of about 0.05 MPa).

Please amend the paragraph on page 17, lines 5 to 10, as follows:

As the case may require, the present invention enables ~~to enhance~~to enhance decomposition of the activated sludge by supplying a gas containing ozone. In addition to the self digestion of the microorganisms, breakdown of activated sludge by ozone affords a large reduction in sludge generated from the reaction vessel, and might eventually preclude sludge generation.

Please amend the paragraph on page 17, lines 11 to 15, as follows:

The use of a pressurized reaction vessel in the present invention, where biological reactions and/or chemical reactions take place under pressure, enables to ~~achieve-achieve~~achieve 100% utilization of ozone, which renders unnecessary deozonation treatments as in the conventional sludge ozone breakdown processes.